

Claims

[1] An electric lamp characterized by comprising:
a bulb comprising a first curved face, the first curved face having a substantially ellipsoidal shape in cross section with a first focal point and a second focal point, and being convex outwardly, and;
a filament comprising a coil part formed by winding a wire and generating a light by being energized, the filament being so arranged that the coil part is positioned in an inner space of the bulb,
wherein a reflective coating is formed on the whole of outer surface or the whole of inner surface of the first curved face, and
the first curved face is so adapted that the first focal point is positioned at the coil part, and the second focal point is positioned at a light transmission medium to which an emerged light generated at the coil part and reflected on the first curved face is provided.

[2] An electric lamp as claimed in Claim 1 characterized in that a second face, facing the first curved face, includes a substantially spherical shape.

[3] An electric lamp as claimed in Claim 1 or 2 characterized in that the bulb comprises a circumferential face for interconnecting a circumferential end portion of the first curved face and a circumferential end portion of the second face.

[4] An electric lamp as claimed in Claim 1, 2 or 3 characterized in that the second face includes a flat portion.

[5] An electric lamp as claimed in Claim 4 characterized in that the flat portion has a circular shape, and has at least a size of passing almost all of emerged light generated at the coil part at the first focal point and reflected on the first curved face.

[6] An electric lamp as claimed in Claim 1, 2, 3, 4 or 5 characterized in that the second face comprises a protrusion portion which protrudes toward the light transmission medium.

[7] An electric lamp as claimed in Claim 1, 2, 3, 4, 5 or 6 characterized in that the second face has a coating for reflecting, transmitting or absorbing a light of a particular wavelength.

[8] An electric lamp characterized by comprising:
a bulb comprising a first curved face, the first curved face having a substantially ellipsoidal shape in cross section with a first focal point and a second focal point, and being convex outwardly, and a second curved face, facing the first curved face, the second curved face having a substantially ellipsoidal shape in cross section with a first focal point and a second focal point, and being convex outwardly, and;
a filament comprising a coil part formed by winding a wire and generating a

light by being energized, the filament being so arranged that the coil part is positioned in an inner space of the bulb,
wherein the respective reflective coatings are formed on the first curved face and the second curved face,
the reflective coating comprises an opening for passing an emerged light generated at the coil part and reflected on the first curved face or the second curved face,
the first curved face is so adapted that the first focal point is positioned at the coil part, and the second focal point is positioned at a light transmission medium to which an emerged light generated at the coil part and reflected on the first curved face is provided through the opening, and
the second curved face is so adapted that the first focal point is positioned at the coil part, and the second focal point is positioned at a light transmission medium to which an emerged light generated at the coil part and reflected on the second curved face is provided through the opening.

- [9] An electric lamp as claimed in Claim 8 characterized in that the first curved face and the second curved face have the same curvature.
- [10] An electric lamp as claimed in Claim 8 or 9 characterized in that at least one of the openings has a circular shape, and has at least a size of passing almost all of emerged light generated at the coil part at the first focal point of the first curved face or the second curved face and reflected on the first curved face or the second curved face.
- [11] An electric lamp as claimed in Claim 8, 9 or 10 characterized in that at least one of the openings includes a flat portion.
- [12] An electric lamp as claimed in Claim 8, 9, 10 or 11 characterized in that at least one of the openings comprise a protrusion portion which protrudes toward the light transmission medium.
- [13] An electric lamp as claimed in Claim 6 or 12 characterized in that an end face of the protrusion portion has a lens effect.
- [14] An electric lamp as claimed in Claim 6, 12 or 13 characterized in that a reflective coating is formed on a side face of the protrusion portion.
- [15] An electric lamp as claimed in any one of Claims 1 to 14 characterized in that the coil part has a square shape or a circular shape as viewed from the light transmission medium side.
- [16] An electric lamp as claimed in any one of Claims 1 to 14 characterized in that the bulb comprises a circumferential face for interconnecting a circumferential end portion of the first curved face and a circumferential end portion of the second curved face.
- [17] An electric lamp as claimed in any one of Claims 1 to 16 characterized in that the material of the reflective coating is Ta₂O₅/SiO₂.

[18] An electric lamp as claimed in any one of Claims 1 to 17 characterized in that the first curved face and/or the second curved face consist of plural portions with different curvatures.

[19] An electric lamp as claimed in any one of Claims 1 to 18 characterized in that halogen is filled in the inner space of the bulb.

[20] A light transmission medium lighting system characterized by comprising an electric lamp and a light transmission medium,
the electric lamp comprising:
a bulb comprising a first curved face, the first curved face having a substantially ellipsoidal shape in cross section with a first focal point and a second focal point, and being convex outwardly, and a second face, facing the first curved face;
a filament comprising a coil part formed by winding a wire and generating a light by being energized, the filament being so arranged that the coil part is positioned in an inner space of the bulb; and
the light transmission medium being arranged in the vicinity of the second face, to which an emerged light generated at the coil part and reflected on the first curved face is provided,
wherein a reflective coating is formed on the whole of outer surface or the whole of inner surface of the first curved face, and
the first curved face is so adapted that the first focal point is positioned at the coil part, and the second focal point is positioned at the light transmission medium.

[21] A light transmission medium lighting system characterized by comprising an electric lamp and two light transmission media,
the electric lamp comprising:
a bulb comprising a first curved face, the first curved face having a substantially ellipsoidal shape in cross section with a first focal point and a second focal point, and being convex outwardly, and a second curved face, facing the first curved face, the second curved face having a substantially ellipsoidal shape in cross section with a first focal point and a second focal point, and being convex outwardly, and;
a filament comprising a coil part formed by winding a wire and generating a light by being energized, the filament being so arranged that the coil part is positioned in an inner space of the bulb; and
the two light transmission media being arranged in the vicinity of the first curved face and the second curved face, respectively, to which an emerged light generated at the coil part and reflected on the first curved face or the second curved face is provided,
wherein the respective reflective coatings are formed on the first curved face and the second curved face,
the reflective coating comprises an opening for passing an emerged light

generated at the coil part and reflected on the first curved face or the second curved face,

the first curved face is so adapted that the first focal point is positioned at the coil part, and the second focal point is positioned at one light transmission medium to which an emerged light reflected on the first curved face is provided through the opening, and

the second curved face is so adapted that the first focal point is positioned at the coil part, and the second focal point is positioned at the other light transmission medium to which an emerged light reflected on the second curved face is provided through the opening.